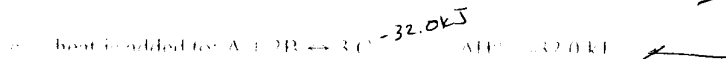
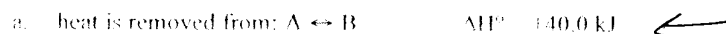
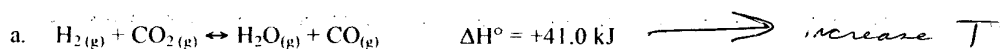


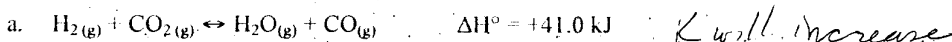
10. For each of the following equilibria, predict whether the system will shift in the forward or reverse directions. Note the energy changes involved and assume that the volume remains constant.



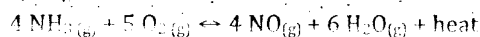
11. In each of the following equilibria, would you increase or decrease the temperature to force the reaction in the forward direction?



12. For each of the equilibria in Question 2 will the value for K increase or decrease if the temperature is raised?

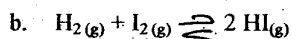
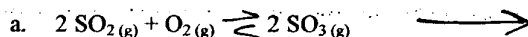


13. Explain the effect of using a platinum catalyst in the equilibrium reaction of ammonia with oxygen:

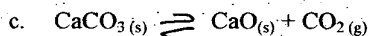


Platinum will ~~help~~ help the rxn. reach equilibrium faster.

14. The pressure on each of the following systems is increased by decreasing the volume of the container. Explain whether each system would shift in the forward direction, the reverse direction, or stay the same.



stay the same, because the same # of moles on each side



\leftarrow